



Prospective Evaluation of Neuropsychological and Mental Health Outcomes of Deployment

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Early Stages: 2003 - 2005

Objectives

- Examine mental health outcomes of Iraq deployment by tracking emotional and neuropsychological health, starting prior to 1st deployment
- Identify risk and protective factors
- Establish a cohort to follow from military to veteran status

Design (n = 1595)

- **Prospective**

Time 1: Prior to Iraq deployment

Time 2: Post-deployment

(1 year follow-up in subsample)

- **2 primary samples of Army personnel**

Iraq-deploying

Non-deploying

- **Battalion-level units**

stratified by unit type

(combat arms, combat support, service support)

stratified by duty status (active duty, National Guard)

Study Procedures

- Conducted on-site at military installations




- Assessed thinking skills (memory, attention, reaction time, etc.) with performance-based tests

- Assessed emotional symptoms with written psychometric instruments

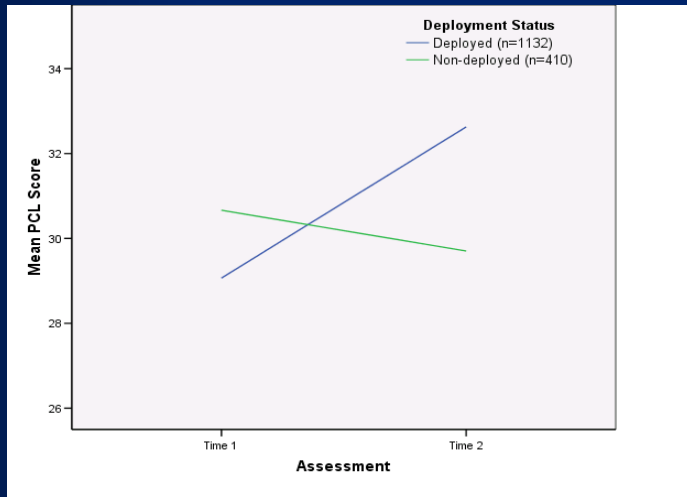


Pre-deployment PTSD

- PCL-C (Hoge strict criteria)
DRRI Life Events, Unit Support
 - 10% PTSD screen positive rate
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- Pre-military stressful life events ➡ PTSD symptoms
 - Unit support buffers effects of adverse life events on PTSD symptoms

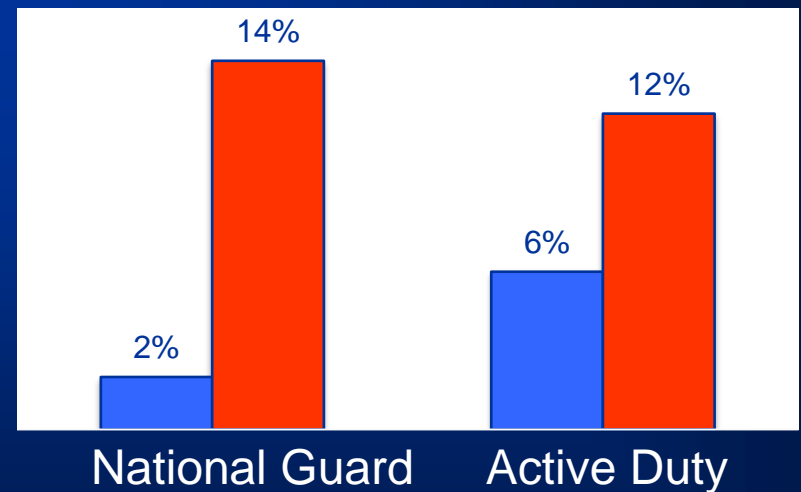
Brailey et al. (2007) *Journal of Traumatic Stress*

Deployment and PTSD

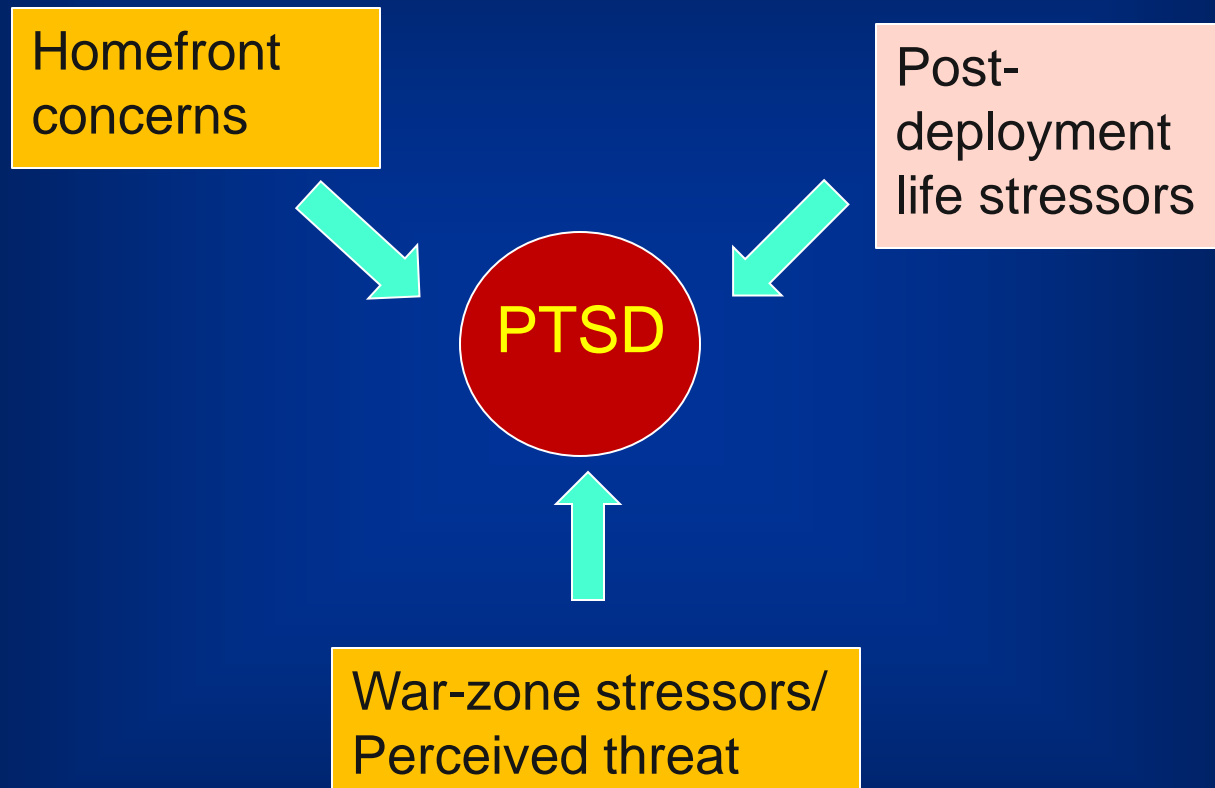


Deployment → increased PTSD symptoms

Rates of PTSD increased more for National Guard



Stress Exposures and PTSD

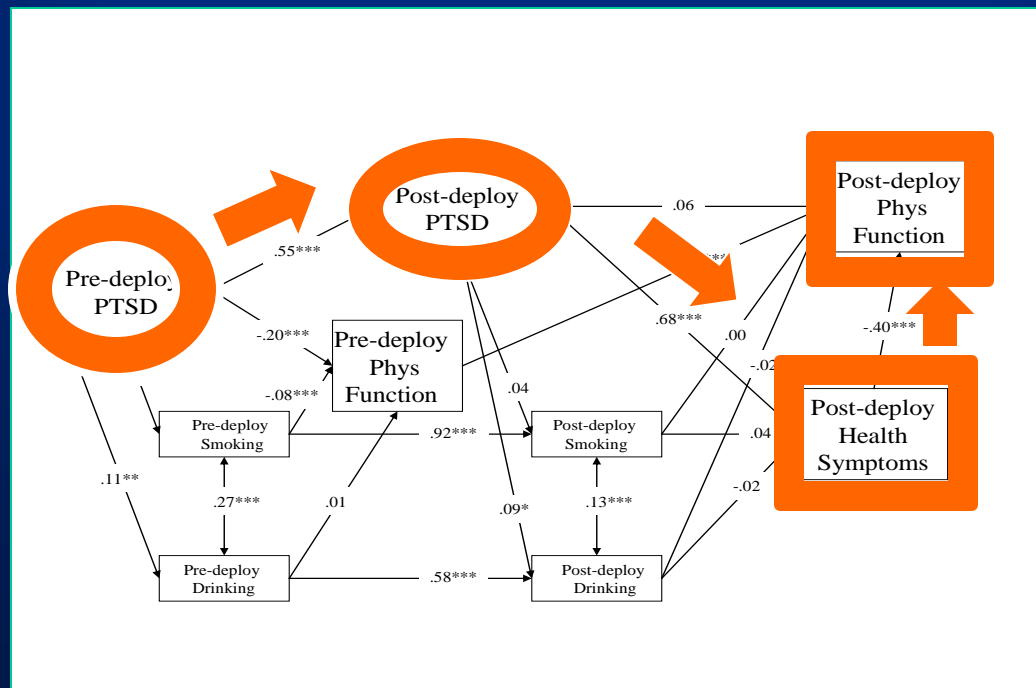


Vasterling et al. (2010) *Journal of Traumatic Stress*

PTSD and Health



- PTSD → physical symptoms → decline in health-related functioning.



New Onset Conditions	Incid (12 mos.)	Combat exp OR (95% CI)	Time 2 PCL OR (95% CI)	Transformed Time 2 PCL OR (95% CI)
Any dx	41%	1.00 (.99-1.02)	1.02 (1.00-1.03)*	1.18 (1.02-1.36)*
Endocrine	6%	1.00 (.97-1.03)	1.01 (.99-1.04)	1.13 (.85-1.48)
Nervous sys	4%	1.02 (.97-1.07)	1.04 (1.01-1.07)*	1.44 (1.06-1.97)*
Circulatory	3%	.98 (.93-1.03)	1.00 (.96-1.04)	1.00 (.66-1.51)
Respiratory	6%	1.01 (.97-1.05)	1.02 (.99-1.04)	1.16 (.89-1.52)
Digestive	6%	1.00 (.97-1.04)	1.00 (.97-1.03)	1.02 (.77-1.34)
Dermatological	6%	.99 (.95-1.03)	1.01 (.98-1.04)	1.08 (.82-1.44)
Musculoskel	27%	1.00 (.98-1.02)	1.02 (1.00-1.03)*	1.20 (1.02-1.40)*
Signs & sx	20%	1.02 (1.00-1.04)	1.01 (.99-1.02)	1.07 (.91-1.27)

Adjusted for age, sex, race, education

*p < .05

Neurocognitive Outcomes: Pre- to Post- Iraq deployment

- Active duty Army soldiers
- 654 deployed; 307 non-deployed
- Memory and attention declined in deployers relative to non-deployers
- Reaction time improved in deployers relative to non-deployers
- Findings: neurobiological survival response carried over?



Vasterling et al. (2006) *JAMA*

PTSD and Neurocognitive Functioning

- Over time, PTSD increasingly associated with poor attention.

Marx et al. (2009) *Archives of General Psychiatry*

- Pre-deployment visual memory proficiency is protective against PTSD symptom increases following deployment.

Marx et al. (2009) *J Int Neuropsych Soc*

TBI, PTSD, and Neurocognitive Functioning

- TBI - associated with decrements in:
self-reported health related functioning
- PTSD - associated with decrements in:
 - neuropsych performances
 - self-reported cognitive functioning
 - self-reported health related functioning
- TBI x PTSD: no significant interactions
- TBI attributes/ prior TBIs: not associated with outcomes

NDHS Cohort: On-going Work

VA CSP# 566

Examines long-term (5+ years) neuropsychological and emotional outcomes of deployment in service members and veterans.

Family Foundations Study



Examines the relationship between service member/veteran PTSD and family mental health outcomes.

Scientific Team

Early NDHS: J. Vasterling, S. Proctor (Co-PIs);
R. Kane, P. Amoroso (Co-Is)

TBI Concept Award: K. Brailey, J. Vasterling (Co-PIs:
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Family Foundations: J. Vasterling, C. Taft (Co-PIs); H. MacDonald,
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